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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,750	03/27/2001	Geun Sig Cha	01-219	3998

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Gregory P. LaPointe  
BACHMAN & LaPOINTE, P.C.  
Suite 1201  
900 Chapel Street  
New Haven, CT 06510-2802

EXAMINER

OLSEN, KAJ K

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/818,750

Applicant(s)

CHA ET AL.

Examiner

Kaj K Olsen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 3, 4, 6, 7, 10-13 and 15-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3, 4, 6, 7, 10-13, 15-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3, 4, 6, 7, 10-13 and 15-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claims 10 and 16 have been amended back to change the “and a” to --or--. This would appear to resolve the previous 112 first paragraph issues (see previous final rejection) because the specification provides support for an electrolyte comprising one of the specified compounds. However, the examiner is confused by the applicant referring to the electrolyte as being a “hydrogel”. Although the examiner appreciates that water soluble polymers like PVP are known to form hydrogels (see p. 24, lines 17-23 and the teaching of Suzuki relied on below), the examiner doesn’t understand how a glycerol solution, an agar solution, or a polymeric glue constitutes a hydrogel. Using glycerol as an example, the examiner is unaware of any art that teaches that a glycerol solution is considered to be a hydrogel. Looking at the various examples in the specification (starting on p. 20), applicant doesn’t refer to the electrolyte being a hydrogel until example 8, which utilized a water soluble polymer. Clarification is requested.

4. In claim 10, the examiner is confused by the limitation “the plate being formed of a material soluble in the porous polymer solution”. First, there is no antecedent basis for “the porous polymer solution”. Is the applicant referring to the porous polymer membrane? However, even that interpretation would make sense because how could anything be construed

as being soluble in membrane. Second, it is unclear how to interpret the plate being made of a material soluble in a polymer when the applicant's own plate materials include alumina and glass (see claim 3). The examiner doesn't consider either of these materials to be soluble in any polymer solution.

5. Claims 17 and 18 are confusing because they depend from claims 16 and 10 respectively, but don't refer to the components already specified in those earlier claims. For example, the examiner presumes "an electrode connection" of claim 17 the same thing as the "electrode connecting part" of claim 16, but this is not made clear by the claims. Claims 17 and 18 should instead refer to the formation of --*the* (or *said*) electrode *connecting* part--. The limitations drawn to "an electrode", "an insulating layer", "an inner reference solution", and "a non-porous protection membrane" are similarly indefinite.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 3, 4, 6 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki et al (Transducers '99, pp. 1180-1183). This reference was previously relied. Its use here was necessitated by the amendment to claim 16.

8. Suzuki discloses a planar reference electrode that comprises a plate (i.e. the substrate), an electrode connecting part, an electrode, an insulating membrane (i.e. silicone passivation layer),

an inner reference electrolyte, a junction and a non-porous protection membrane. See fig. 3. The junction is formed in a line (Suzuki refers to it as a "recess") formed as a vacancy within the insulating membrane. Again see fig. 3 and the discussion in the second column of p. 1181. With respect to the recess reading on "micro capillary", applicant doesn't appear to have defined "micro capillary" in such a manner that reads free of the small recess of Suzuki. With respect to the claimed electrolyte, see the second column of p. 1181 (PVP is a soluble polymer).

9. The plate of Suzuki is glass. The electrode of Suzuki is Ag/AgCl. The electrolyte is KCl.

***Claim Rejections - 35 USC § 103***

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Kotani (USP 4,857,166).

12. This claim further differs by calling for the covering membrane to be made of polyester. Kotani discloses terephthalate as construction material for a sensor component. See col. 7, line 18. It would have been obvious for Suzuki to use a polyester covering membrane in view of Kotani, because polyester is inert and transparent, properties that are desirable for an electrolytic sensor.

13. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Cranny et al (Meas. Sci. Technol. 9, (1998), pp. 1557-1585).

14. This claim calls for a method of fabricating the planar electrode. Most of the steps describe necessary and inherent operations for assembling the electrode. However, steps 2 and 3

differ from Suzuki by calling for the electrode and the insulating layer to be formed by screen printing. Cranny discloses forming an electrode and an insulating layer by printing. See page 1558, right column. It would have been obvious for Suzuki to form the electrode and the insulating membrane layer by printing in view of Cranny, because the incorporation of known features from analogous prior art is within the skill of the art in the absence of unexpected result.

### *Allowable Subject Matter*

15. Claims 10-13, 15 and 18 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

16. The following is a statement of reasons for the indication of allowable subject matter: Claim 10 sets forth, among other things, the presence of porous polymer membrane that functions as both a junction and a protection membrane. Furthermore, claim 10 specifies that the polymer membrane is directly fixed to the plate and specifies that the inner reference solution be an electrolyte of a particularly claimed composition. These cumulative features (in addition to the other features of the claim) are not disclosed nor rendered obvious by the prior art teachings. In particular, Suzuki fails to disclose the use of a porous membrane as the junction. Kotani fails to disclose the use of a junction that is directly fixed to the plate.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaj Olsen whose telephone number is (571) 272-1344. The


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examiner can normally be reached on Monday through Thursday from 5:30 A.M. to 3:00 P.M. and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen, can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AU 1753  
October 29, 2004



**KAJ K. OLSEN**  
**PRIMARY EXAMINER**